

### CLAIMS

A listing of all claims and their current status in accordance with 37 C.F.R. §

1.121(c) is provided below.

1. (Currently Amended) A method of creating an image which includes the steps of:  
obtaining a ~~substantially linear~~ representation of the brightness of an image, said  
representation being linear over the whole range of brightness, by calculating the method  
~~comprising~~, for each of a set of pixels (x, y) in a two dimensional array, ~~calculating~~ an  
estimate of the true image intensity ( $i_{xy}$ ) as a weighted average of n samples of the  
apparent image intensity ( $v_{n,xy}$ ) as

$$\hat{i}_{xy} = \frac{\sum_n \left( w_{n,xy} \left( \frac{v_{n,xy} - C}{K T_n} \right) \right)}{\sum_n w_{n,xy}} = \frac{1}{K} \frac{\sum_n \left( w_{n,xy} \left( \frac{v_{n,xy} - C}{T_n} \right) \right)}{\sum_n w_{n,xy}}$$

where  $v_{n,xy}$  is the apparent intensity measured, n is greater than or equal to 2,  $T_n$  is  
the exposure time, K is the gain of the system, C is an offset and  $w_{n,xy}$  is a weighting  
factor which is defined to maximise the signal to noise ratio and discard insignificant,  
that is saturated or near zero, values;

thereafter saving each of the values  $i_{xy}$  together with other data representing the  
image; and

outputting the image to a display or to a printing device.

2. (Original) A method according to claim 1, wherein a linear relationship is  
established between images recorded with different exposure times by the use of a

perpendicular regression technique whereby each image is transformed to match the scale and offset of the first in the series and whereby the weighted average is calculated as:

$$\hat{l}_{xy} = \frac{\sum_n w_{n,xy} \left( \frac{v_{n,xy} - \sum_n b_n}{\prod_n a_n} \right)}{\sum_n w_{n,xy}}$$

where  $a_n$  and  $b_n$  are the gradient  $a$  and offset  $b$  measured between image  $n$  and image  $n-1$  ( $a_1=1$ ;  $b_1=0$ ) when

$$w_{n,xy} = \begin{cases} \prod_n a_n & v_{\min} < v_{n,xy} < v_{\max} \\ 0 & \text{when } v_{n,xy} \geq v_{\max} \\ 0 & v_{n,xy} \leq v_{\min} \end{cases}$$

3. (Original) A method according to claim 1 or claim 2, wherein the image is a coloured image and the offset is colour dependent.